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A microscopical examination made sometime afterward revealed some noteworthy peculiarities in the shape, size, and number of cells in the teleutospores. The usual two-celled spores were present but accompanied by others having one, three, and four cells.

The different forms were about equal in number but differed considerably in size, the four-celled variety being the largest, as one would naturally expect. Of each form ten measurements were made, giving the following extremes: one-celled, $27-36 \times 15-20\mu$; two-celled, $30-45 \times 15-21\mu$; three-celled, $45-54 \times 15-21\mu$; four-celled, $52-66 \times 15-20\mu$.

The one-celled spores might easily have passed for the teleutospores of some *Uromyces* such as *U. graminicola* Burrill. The two-celled ones were quite normal in size and shape, except that in some the pedicels were much stouter than are usually found in *P. graminis*, more closely resembling the pedicels of *P. emaculata* Schw. The three and four-celled forms were of three kinds, some having the upper septum horizontal, some oblique, and others vertical, as though the upper cell had been formed as a sort of afterthought, by the division of the second or third cell as the case might be.

In these the evolutionary development of several genera of Uredinae could be plainly traced, passing from the lower *Uromyces* through *Puccinia* and *Triphragmium* to *Phragmidium*. The spores, aside from the number of cells, were not likely to be mistaken for those of *Triphragmium* or *Phragmidium*, as they were quite different in general appearance. These genera have undoubtedly a common origin, and must be looked upon as being more highly developed, more specialized, in direct relation to the number of cells in the spores, as it is quite apparent that a larger number of sporidia can be produced with less effort in those having the larger number of divisions in the spores.—H. HAROLD HUME, *Iowa State College, Ames*.

WHAT IS PRUNUS INSITITIA?

In the June number of the BOTANICAL GAZETTE there appeared an article under the heading given above and written by Professor F. A. Waugh. The conclusion to which the author arrives, in his own words, is "that there is no such species as *Prunus insititia*."

To me this seems rather strange. I happen to have been born in the land of Linnæus and received a large portion of my botanical

education at the Royal Gymnasium at Skara, Sweden. As a boy, I used to pick and eat the fruit of what there is known as *Prunus insititia*, and as a young botanist I made herbarium specimens thereof. I know that the tree which goes under that name is more distinct from *P. domestica*, as well as from *P. spinosa*, than *P. hortulana*, or *P. nigra*, or even *P. angustifolia* is from *P. Americana*. I know that there are at least three species of plums in Sweden, for I have seen them myself.

The latest catalogue of the plants of Scandinavia, published in 1897, also gives the following plums: "*Prunus spinosa* L., *P. spinosa coactanea* W. & Gr., *P. insititia* L., *P. insititia rustica* Hn., and *P. domestica* L." Of these the first three are recognized as being natives of Sweden, while *P. domestica* and *P. insititia rustica* are regarded as only escaped from cultivation. So far as I know, *P. insititia* L. has always been regarded as a good species in Sweden; but let us see how botanists of other countries have treated it.

As Linnæus in the original description stated that *P. insititia* is a native of England and Germany, it will suffice to see how the botanists of those countries have treated the species. In almost every German flora *P. insititia* is regarded as a good species. Koch, the acknowledged authority in Germany, recognized it, and in Thomé's elaborate work there is an excellent description.

It is true that Bentham put *P. domestica*, *P. insititia*, and *P. spinosa* into *P. communis* Huds.; but Hooker, who has always been known for his conservatism, recognized all three as distinct species, not to mention other less important English botanists. It is figured in Sowerby's English Botany 12: 841.

With these facts in view, it is surprising that one who has not studied the native plums of Europe in the field, with the few specimens found in the American herbaria, undertakes to settle the existence or non-existence of *P. insititia*, and can state positively "that there is no such species as *P. insititia*."

If Professor Waugh had said that *P. insititia* is the same as *P. domestica Damascena*, or that *P. insititia* is not found in America, I should have been the last to criticise. I have not the means to disprove the former, and I am more than willing to accept the latter. *P. domestica Damascena* L. was based upon "*Pruna majora dulcia et parva atrocaerulea*, Bauh. pin. 443, n. 23," and *P. insititia* L. on "*Pruna sylvestria praeocia*, Bauh. pin. 444." Apparently, therefore, they seem to be two different things. For that matter they might well belong to

the same species. Koch states in the older edition of his *Flora* that Linnæus included several forms in *P. domestica*, which rightfully belonged to *P. insititia*. Even this question has to be settled in Europe.

As to the non-existence of *P. insititia* in America, I agree fully with Professor Waugh, for the following reasons: If Dr. Gray had had what is known as *P. insititia* in Sweden, I doubt that he would have made it a variety of *P. spinosa*. Dr. Gray's statement that it is "adventitious in hedgerows" made me very suspicious when I saw it in his manual a year or two ago; for *P. insititia*, so far as I know, is never used for hedges. I think that *P. insititia* should be erased from the list of American plants.—P. A. RYDBERG, *New York Botanical Garden*.

NOTES ON THOREA.

(WITH PLATE XXVI)

ON October 1, 1898, Mr. A. A. Hunter, collector for the botanical department of the University of Nebraska, found specimens of *Thorea ramosissima* Bory in Rock creek, a small stream near Lincoln, Neb.¹ The plants were floating from a gravelly bottom in swift running water at a depth of half a meter and were surrounded by a mass of other algæ, principally Vaucheria. Subsequent search for Thorea in this locality has thus far proved unavailing.

So far as we know, Thorea has been found to a certainty in but three other localities in North America. E. Hall collected a specimen of *Thorea ramosissima* Bory in the Sangamon river, Illinois, in 1866, and this, with specimens of other fresh water algæ, was afterwards sent to the Botanical Museum of Berlin, where it is still preserved.² Francis Wolle found a mere fragment of Thorea in a lake at Winter Park, Florida, date not given.³ Professor De Alton Saunders,⁴ in December 1898, found Thorea in abundance in running water from springs in Texas, the stations being San Marcos (Hayes county), New Braunfels (Comal county), and San Antonio (Bexar county).

¹ See notice in BOT. GAZ. 27:71. 1899.

² MAGNUS: *Thorea ramosissima* Bory bei Belgrad in Serbien und deren weitere Verbreitung. Hedwigia 38:114. 1899.

³ WOLLE: Fresh water algæ of the United States, 58. 1887.

⁴ Communicated in a letter, accompanied by specimens in formalin.